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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,185	08/26/2005	David William Sheel	264240US2PCT	3653

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EXAMINER	
CHEN, BRET P	
ART UNIT	**PAPER NUMBER**
1792	

NOTIFICATION DATE	DELIVERY MODE
07/11/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/522,185	SHEEL ET AL.	
	Examiner	Art Unit	
	Bret Chen	1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25 and 27-48* is/are pending in the application.

4a) Of the above claim(s) *46-48* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *25, 27-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 25, 27-48 are pending in this application. Amended claim 25 and canceled claim 26 are noted.

The amendment after final dated 5/12/08, previously unentered, has been entered in this application.

Claims 46-48 are withdrawn from consideration as being directed to a nonelected invention.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/12/08 has been entered.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

It is noted that the claimed invention is directed solely to a method. The examiner suggests amending the title to reflect same.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 35, 44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 35, the phrase "using a method in combination with a different depositing method" is deemed vague and confusing as to what said phrase means. What kind of method is being referred to? This implies that any method can be used in combination and one skilled in the art would know that not all methods can be combined.

In claim 44, the term "semi-continuously" is deemed vague and indefinite as to what this term means. Clarification and, if necessary, appropriate amendments are requested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 25, 27-29, 32-36, 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rzad (5,156,882) in view of Barnes et al. (2005/0098115) and further in view of Yang et al. (6,110,544). Rzad discloses a method of preparing transparent plastic articles having an improved protective stratum by depositing a multi-layered coating by plasma enhanced chemical vapor deposition on the surface of a polycarbonate substrate (abstract) in which the layers can be selected from the group consisting of zinc oxide, titanium dioxide, cerium dioxide and vanadium pentoxide (col.2 lines 14-27). It is noted that titanium dioxide is preferred (col.5 line 30) and can have a thickness of 1000-10000A (col.5 lines 31-32) and can be deposited by using a glow discharge (col.5 line 61 – col.6 line 3) at a substrate temperature less than 130°C (col.6 lines 4-23). The precursors can be organic and can be liquid or gaseous (col.7 lines 5-30) and are inserted into the reactor at a specific flow rate and ratio (col.7 lines 31-59 and col.8 lines 17-28). However, the reference fails to teach atmospheric pressure.

Barnes discloses a method of depositing a material on a substrate using an apparatus comprising: (a) a first atmospheric deposition station; (b) a second atmospheric deposition station comprising an atmospheric pressure vapor deposition chamber, wherein the first atmospheric deposition station and the second atmospheric deposition station are coupled together; and (c) a substrate handling system adapted to transfer substrates between the atmospheric deposition station and the second atmospheric deposition station (0009). In one embodiment, APCVD processes are especially suitable for forming compound layers, such as titanium oxide, etc (0036). APCVD has the advantages of reducing processing time thus increasing efficiency (0006). It would have been obvious to utilize the atmospheric pressure in

the process of Rzad with the expectation of obtaining increased efficiency because Barnes teaches that atmospheric pressure reduces processing times.

In addition, the references fail to teach the claimed post treatment step. Yang discloses a method of depositing metal oxide coatings on glass, metal, and plastic substrates by arc plasma deposition (abstract). The substrate can be polycarbonate (col.2 lines 8-16), the coatings can be titania (col.6 lines 57-67) and the deposition process can be plasma (col.1 lines 32-35). A subsequent plasma step can be incorporated (col.9 lines 19-35). It would have been obvious to incorporate Yang's additional plasma step in the process of Rzad and Barnes with the expectation of obtaining similar results.

It is noted that the all the references are absent any water vapor level. Hence, the references read on the applicant's claimed water level. However, if the applicant were to amend the claim without adding new matter to state that the post treatment step is utilized to produce a specific water vapor level, then the examiner would consider withdrawing the present art rejection.

In claim 27, the applicant requires modifying the film stoichiometry. This limitation is met in col.6 lines 37-43 and col.9 lines 56-65.

In claim 28, the applicant requires laminar flow. This limitation is met in col.9 lines 16-25.

In claim 29, the applicant requires an extraction system. This limitation is met in col.6 lines 24-25, col.8 lines 29-54, col.10 lines 29-35, col.11 lines 4-12.

In claim 32, the applicant requires a specific titanium precursor. This limitation is met in col.8 lines 44-50.

In claim 33, the applicant requires a specific thickness uniformity. Rzad discloses maximizing uniformity using laminar flow and thus would have been obvious to obtain values in the claimed range through routine experimentation or optimization.

In claim 34, the applicant requires sequential coating regions. This limitation is met in Example 1.

In claim 35, the applicant requires a different coating method. This limitation is met in Barnes at 0010.

In claim 36, the applicant requires a specific frequency. This limitation is taught in col.9 lines 56-65.

In claim 39, the applicant requires a specific density. Rzad teaches improving the uniformity of the plasma density and thus would have been obvious to obtain values in the claimed range through routine experimentation or optimization.

In claim 40, the applicant requires a specific growth rate. This limitation is met in col.11 lines 56-62.

In claims 41-42, the applicant requires a specific substrate. This limitation is met in col.3 line 67 – col.4 line 3 and col.2 lines 53-61.

The limitation of claim 43 has been addressed above.

In claim 44, the applicant requires a continuous film. This limitation is met in col.7 lines 5-30.

Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rzad (5,156,882) in view of Barnes et al. (2005/0098115) and Yang et al. (6,110,544) and further in view of Horiike et al. (5,185,132).

The combination of Rzad, Barnes, and Yang teach an atmospheric process of depositing a titania coating with a post treatment step as noted above. However, the reference fails to teach a specific thermal control system. Horiike teaches an atmospheric plasma system which includes a thermal control system at col.1 lines 1-2 and col.3 line 65- col.4 line 2. It would have been obvious to one skilled in the art to modify the combination of Rzad, Barnes, and Yang to include a thermal control system since such a modification would result in a stable plasma under atmospheric pressure as described in col.1 lines 55-60.

Claims 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rzad (5,156,882) in view of Barnes et al. (2005/0098115) and Yang et al. (6,110,544) and further in view of David (6,197,120).

The combination of Rzad, Barnes, and Yang teach an atmospheric process of depositing a titania coating with a post treatment step as noted above. However, the references fail to teach the appropriate electrode material. David teaches a method of depositing a film using metal electrodes such as brass to reduce heat generation (col.11 lines 1-3). It would have been obvious to modify the combination by using brass electrodes with the expectation of obtaining the known benefits including reducing heat.

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rzad (5,156,882) in view of Barnes et al. (2005/0098115) and Yang et al. (6,110,544) and further in view of Takano (6,828,235).

The combination of Rzad, Barnes, and Yang teach an atmospheric process of depositing a titania coating with a post treatment step as noted above. However, the references fail to teach flushing zones. Takano discloses a semiconductor manufacturing process which includes one or more gas flushing zone to allow introduction and removal of substrates while maintaining integrity of the coating region gas composition (col.6 lines 21-50). It would have been obvious to include flushing zones in the process of Rzad, Barnes, and Yang with the expectation of minimizing contamination.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bret Chen whose telephone number is (571)272-1417. The examiner can normally be reached on 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bret Chen/
Primary Examiner, Art Unit 1792
6/30/08